



Grade 5

Reducing Friction Investigation

Student Journal

Name _____

School _____

Winter 2001

Our Question

The question we are going to investigate is:

What I Already Know

Here are some things I already know about the question:

What I Think Will Happen — My Hypothesis

This is what I think will happen:

Materials That We Will Use (for each group of 3 to 4 students)

1. **Reducing Friction Investigation Student Journals** (1 for each student)
2. string
3. 1 large paperclip
4. 20 large washers to use as weights
5. 30 plastic drinking straws
6. meter stick
7. masking tape
8. 2 paperback books with dimensions $2.5 \times 10 \times 17.5$ cm (approximately) printed on coarse, lightweight paper
9. level work surface (table)

Procedure

1. Attach masking tape to a flat work surface, such as a table. The tape should start at the outside edge of the table and extend 50 cm toward the center.
2. Loop the string through one of the paperback books along the spine.
3. Place the spine of this book in the middle of the table, even with the back edge of the tape. Let the string hang off the edge of the table at least 50 cm from the floor.
4. Predict how many weights (washers) will be needed to move the book.
5. Open a paperclip to make a hook for the weights.
6. Record the number of weights needed to move the book to the edge of the table.
7. Repeat the investigation with the following change. Line up the plastic straws 2.5 cm apart, perpendicular to the tape. The straws should extend from the edge of the table to 10 cm beyond the back edge of the tape.
8. Place the book on the rollers (straws) with the spine even with the back edge of the tape.
9. Predict how many weights will be needed to move the book.
10. Add weights until the book moves to the edge of the table.
11. Record the number of weights needed to move the book.
12. Repeat steps 3 through 11 using two books. Place the second book on top of the book with the loop of string.

My Observations

Reducing Friction Data Table

Number of Books	Friction Setup	Predicted Weights	Weights Needed
1	on table		
1	on rollers		
2	on table		
2	on rollers		

Notes About the Investigation

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Summary of My Results

The summary of my results:

My Answer to the Question

My answer to the question is:

My Reasons for My Answer

I think this is the answer because I observed:

Possible Errors

These are the things that might have caused errors in my investigation:

Additional Notes

